

Highlights of Nanoscale Science and Technology at UB

UB Led Multi-institutional Initiatives:

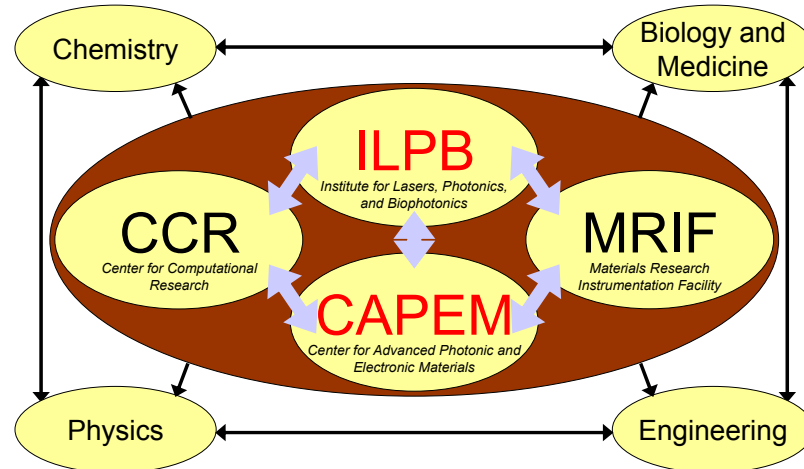
Polymeric Nanophotonics and Nanoelectronics:
AFOSR Defense University Research Initiative on Nanotechnology (DURINT)
Spintronics and Spinphotonics in FM InAs/GaSb-based Heterostructures: DARPA SpinS Program

Local Resources:

ILPB: 25 faculty members active in nano/bio photonics
CAPEM: 27 faculty members active in materials research
MRIF: manages and maintains shared research instruments
CCR: provides computational tools for nanoscale modeling and simulation

Associated faculty funded by:
NIH, NSF, DOE, ONR, AFOSR, ARO, NASA

Existing Infrastructure



Collaborations:

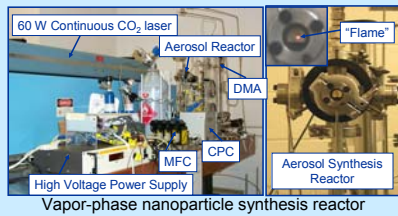
National Laboratories:
NRL, AFRL, ARL, NASA GRC, NIST, Sandia
Industrial:
Intel, GE, Micron, Corning, Kodak, Anvik, and others
Universities:
MIT, Yale, UC Berkeley, Washington, Cornell, RIT, CCNY, Georgia Tech, Notre Dame, Penn State, and others
International:
Chitose Institute of Science and Technology (Japan), Atlantic Corridor, Industrial Technology Research Institute (Taiwan), Australian Photonics Cooperative Research Center, State Key Laboratory Nanocenter (China), and others

Student Education and Training:

NSF Biophotonics Integrative Graduate Education and Research Traineeship (IGERT)

Synthesis and Growth

MBE and MOCVD
Sol-gel processing
Vapor-phase, Liquid-phase, and Two-phase nanoparticle synthesis systems
Bioinspired and Hybrid materials
Surfactant and Block-copolymer based self-assembly



Structural Characterization

TEM SEM OCT
AFM MFM STM

Magnetic Field Facilities

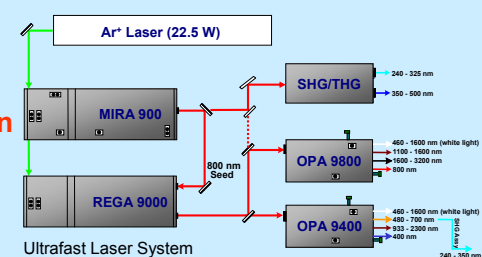
SQUID magnetometry
Optical access 10T split-coil magnet
15T/17T magnet for visible (fiber optic), FIR and transport measurements



Recently Acquired Equipment

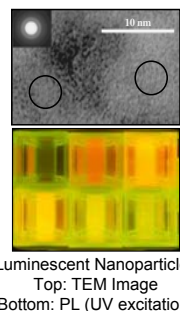
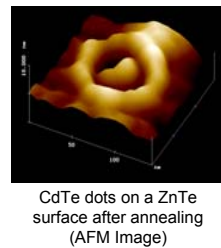
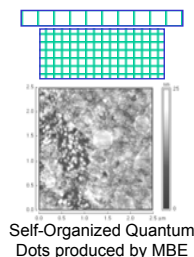
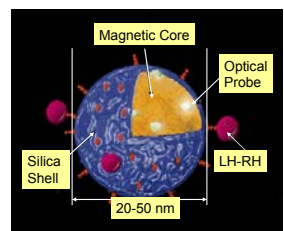
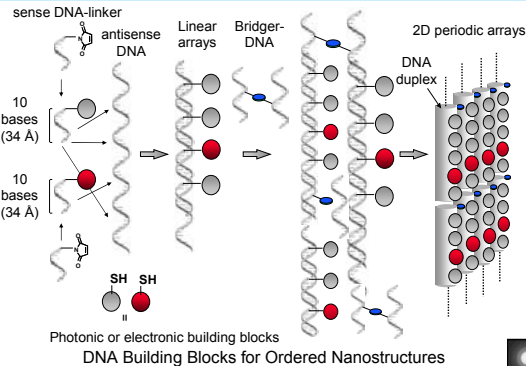
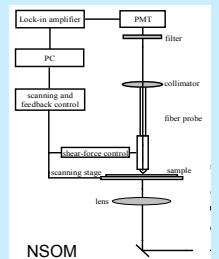
Fiber Drawing Tower
E-Beam Lithography

Spectroscopy

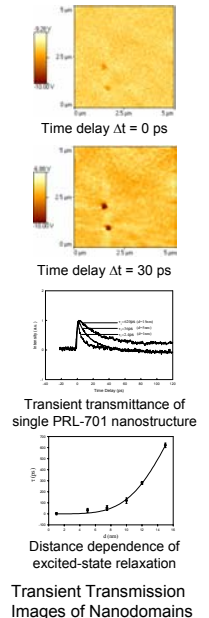
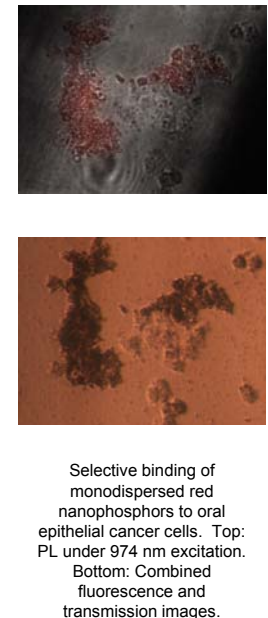
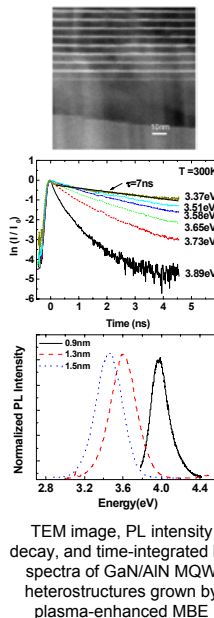
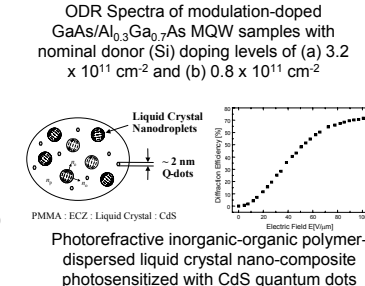
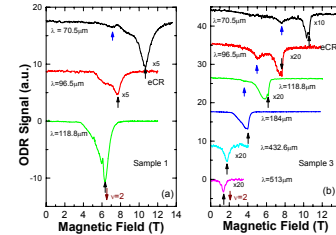
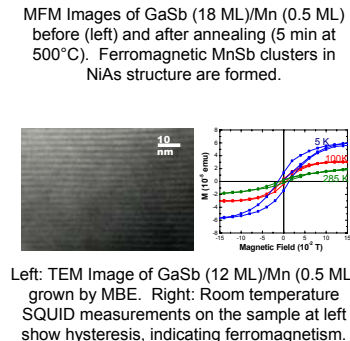
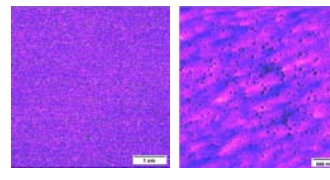


Microscopy

Confocal microscopy
Two-photon microscopy
Near Field Scanning
Optical Microscopy (NSOM)
Laser Trapping



Representative Results



The Institute for Lasers, Photonics, and Biophotonics
The Center for Advanced Photonic and Electronic Materials

Contact:
Alexander Cartwright,
Director, ILPB
Phone: 716-645-3115 x 1205
Email: anc@buffalo.edu

University at Buffalo
The State University of New York